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Comparative Analysis of Rural Development

— Rice-Growing Villages in Thailand and Malaysia —

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This paper reports a hasty review of a series of tables which are derived from a joint field survey conducted in 1976.¹⁾ The purpose of the presentation is threefold: (1) to provide comparable data on environment, rice technology, and farm economy; (2) to analyze the living standards of peasant farmers who live in different ecological areas and have developed different patterns of rice cultivation; (3) to identify the effects of new rice technology upon socio-economic aspects of rural life, which may at the same time, be influenced by urbanization or industrialization. In brief, the paper attempts to explore a basic approach for anthropologists who are interested in the scientific study of rural development in a cross-cultural comparative perspective.

Rural development in general covers a wide range of problems of peasant life. The scope of this study includes peasants' adaptation to the natural environment, rice cultivation and farm economy, patterns of economic adaptation, and the social consequences of these processes on traditional patterns of peasant community. Thus it is concerned with an analysis of the changing aspects of peasant communities rather than the component- and consequence- analysis of high yielding varieties *per se*. However, since the available material is quite limited, the paper does not intend to analyze the process of change itself, but instead confines itself to identifying emerging trends.

The field survey was conducted in six rice-growing villages of Thailand and three in Malaysia. These were selected on the basis of physiographic characteristics as representative of different regions of the respective countries. The administrative location of these villages is as follows: in Thailand, (1) Don Daeng (M2), Tambon Don Han, Amphur Muang, Changwat Khon Kaen; (2) Khok Chyak (M9), Tambon Taan Diaw, Amphur Kaeng Khoi, Changwat Saraburi; (3) Sankabthong (M7), Tambon Saraphi, Amphur Saraburi, Changwat Chiang Mai; (4) Yamani (M7), Tambon Ongkharak, Amphur Pho Thong, Changwat Ang Thong; (5) M7., Tambon Wangyang, Amphur Sri Prachan, Changwat Suphan Buri; (6) M12., Tambon Kubang Luang, Amphur Laad Lum Kaew, Changwat Pathum Thani; and in

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1) The present article takes a form of summary, and the full length of analysis together with a series of tables is found in this *Journal*, 1977, Vol. XV, No. 3, pp. 398-420.

Malaysia, (7) Kampung Padang Lalang, Mukim Padang Lalang, Daerah Kota Setar, Negri Kedah; (8) a village in Mukim Tanjung Karang, Daerah Kuala Selangor, Negri Selangor; (9) Kampung Galok, Daerah Cetok, Jajahan Pasir Mas, Negri Kelantan. All the villages were surveyed in July and August, 1976, except the last one, Galok, which is to be interviewed in the near future and therefore does not appear in this article. Households for interview were chosen at random.

Wet-rice cultivation is primarily dependent on water availability and land fertility, which may be natural or modified by devices to various degrees. This permits one to identify four patterns of ecological adaptation among the nine villages, according to man's ability to control the physical environment.

Group (I) employs the rainfed TV single-cropping system, and is represented by Don Daeng, Khok Chyak, and Galok. Group (II) is represented by Sankabthong, which has practiced double-cropping on the alluvial plain of an intermontane basin. Group (III) has a stable double-cropping system with the assistance of government-sponsored irrigation projects. It includes Yamani and M6 Wangyang on natural levees in the old delta, and Tanjung Karang on a sandy coastal plain. The soil of villages in this group is medium in fertility. Group (IV) displays the highest form of ecological adaptation using modern technology. Kubang Luang, lying in a back swamp of the young delta, grow HYVs in large area only during the off-season. And Padang Lalang practice intensive double-cropping in the lagoonal portion of a coastal plain.

The average yield of paddy correlates to the four patterns of ecological adaptation: Group (I) produced 1.2–1.8 (1.1–1.4) tons/ha.; Group (II), 2.5 (1.4) tons/ha.; Group (III), 4.9–5.3 (3.1–3.5) tons/ha.; and Group (IV), 3.8 (2.3) tons/ha. in Kubang Luang and 10.4 (6.5) tons/ha. in Padang Lalang.²⁾ The unit price of paddy is about one and half times higher in Malaysia than in Thailand.

Higher yield and land productivity correspond to ecological adaptation with more advanced technology. And in Thailand, since HYVs have been adopted mostly as off-season crops, the increase in yield and productivity can be attributed primarily to the development of off-season cultivation associated with HYVs. While in Malaysia, Padang Lalang and Tanjung Karang display successful dissemination of HYVs in both seasons, which would be anticipated from the high level of fertilizer input and management.

The higher yields and productivity of rice would be expected to lead to an increase in household income. But income is in fact also determined by several other factors such as land holding, land utilization, off-farm economic activities, labor employment, urbanization and other features.

Net income from paddy, in terms of per capita, are as follow. Group (IV) has the

2) Figures in parentheses indicate net paddy yield.

highest per capita income; that is, US\$293 for Padang Lalang and US\$268 for M 12 Kubang Luang. Two villages in Group (III) come next; US\$199 for M6 Wangyang and US\$135 for Yamani. The income of people in Tanjung Karang is the same as that of Khok Chyak in Group (I), US\$93. Sankabthong in Group (II) may be classified in the same category, although per capita income in the survey year was only US\$30 because of the total failure of the main season crop. Don Daeng in Group (I) has a per capita income of US\$38, which represents the subsistence level of rice cultivation in Thailand. The subsistence level figure is probably about US\$60 in Malaysia because of the higher unit price for paddy.

At the final analysis, total household income (including off-farm income) falls into groups which coincide with the four techno-ecologically defined groups. In terms of per capita income, Group (I) has per capita income of US\$100 to US\$200 (US\$100 for Don Daeng and US\$175 for Khok Chyak); Sankabthong in Group (II) has US\$130 (much less than in a normal year); Group (III) has US\$200 to less than US\$300 (US\$212 for Yamani, US\$236 for M6 Wangyang, and US\$244 for Tanjung Karang); and Group (IV), more than US\$300 (US\$328 for Kubang Luang and US\$430 for Padang Lalang).

The aggregate effect of adoption of HYVs and double-cropping (including off-season specialization) is more clearly seen when income from paddy and agricultural labor alone is taken into account. The figures per capita are as follows: Group (I), US\$40 for Don Daeng, and US\$104 for Khok Chyak; income in Sankabthong, Group (II), is extremely low because of instability, it being only US\$30; Group (III), US\$135 for Yamani, US\$161 for Tanjung Karang, and US\$213 for M6 Wangyang; and Group (IV), US\$275 for M12 Kubang Luang and US\$327 for Padang Lalang.

The foregoing accounts of farm economy only correspond to the average, and do not illustrate the reality of socio-economic change brought by adoption of HYVs and double-cropping. Income distribution by type of land tenure shows that every village has households of different economic standing; income is relatively evenly distributed in Tanjung Karang in contrast to the other villages; and the differences in income in the traditional villages of Don Daeng and Khok Chyak are as large as those in M12 Kubang Luang and Padang Lalang which have adopted the new rice technology with more advanced technology. However, considering different patterns of farmer's adaptation to new economic conditions created by higher techno-ecological adaptation, it turns out that the distribution of income from paddy in the village of Group (II), (III), and (IV) is not simply the result of land ownership, but includes the dis-aggregated effects of new technology on different types of farm households.

It has been generally assumed that the dis-aggregated effect of new rice technology stimulates polarization among peasant farmers. Since the present material does not allow me to follow the process itself, an attempt will be made to identify some of the trends

among peasant farmers of different economic standing.

Sankabthong in Group (II), and Yamani and Tanjung Karang in Group (III) remain at a semi-commercial level of rice cultivation, and the aggregate effect of new technology in these villages appears smaller than in M6 Wangyang in Group (III) and M12 Kubang Luang and Padang Lalang in Group (IV) which have developed commercial rice cultivation.

Of the three semi-commercial villages of Groups (II) and (III), Sankabthong and Yamani have undergone rapid change because of the impact of the urban and industrial sector. Thus a large number of part-time farmers are found in almost every category of farm household. This trend is so definite that it permits one to assume a process of "de-farming" in these villages, the exception being the large owner-farmers of Yamani who are full-time rice cultivators. It is these farmers who have been benefited from the new rice technology. In Tanjung Karang, urbanization has had less of a polarizing effect on the villagers' livelihood. In this village, although the distribution of land ownership is relatively even, about half of the farm households derive some benefit from new rice technology and harvest more than they consume. The other half, who are small owner-farmers and tenants, produce only what they consume or less. This dis-aggregated effect is off-set largely by income from tree crops and agricultural labor. It is to be noted that tenants, who constitute only 15% of the sample farm households, draw half of their household income from agricultural labor: the majority of them are agricultural workers.

M6 Wangyang of Group (III) and M12 Kubang Luang and Padang Lalang of Group (IV) practice commercial rice cultivation. Most of the farmers depend primarily on rice production, while urbanization has not much affected their economic activities in spite of its general influence on rural life. But Thailand and Malaysia display different features of dis-aggregated effects. In Padang Lalang as in other villages, owner-farmer landlords and large owner-farmers benefit the most from new rice technology. A small gap is discernible between this category and that of small owner-farmers and tenants, who make up 48% of the sample farm households. As in Tanjung Karang, these peasant farmers depend mostly on agricultural labor for a living, although it contributes only 30% of total household income. However, despite their unfavorable economic standing, it appears that they have not accumulated debts.

Tenants in both M6 Wangyang and M12 Kubang Luang in Thailand definitely show signs of accumulation of debt, since their outstanding debts are almost twice as high as the sums of money they borrowed during the past year. Owner-farmer landlords and owner-farmers show no accumulation of debt, and are firmly established as full-time rice-growing farmers. M12 Kubang Luang is more problematic because of the high tenancy rate; eleven of the twelve sample farm households are tenants. In other words, the whole village suffers from a dis-aggregated effects; if not one has to assume an

extremely high level of consumption. Thus, although this village has a comparatively high per capita income, it is likely that the lives of these farmers are not easy.

Finally, the dis-aggregated effect does not apply to Don Daeng and Khok Chyak in Group (I). Different economic standing and socio-economic differentiation in these villages must be discussed in the context of family cycle, land fragmentation and access to non-agricultural work and urban employment.

The major points will be summarized as follow. It is evident that higher technological adaptation results in higher yield and productivity, and is likely to bring about an increase of household income. But the effect on household income depends greatly on the size of landholding, and besides, household income is derived not only from rice cultivation but also from other farming and non-farming activities. Thus, the larger the landholding, the more visible is the aggregate effect of new rice technology. However, this creates new economic conditions, to which peasant farmers adapt themselves. These conditions impose a strain on the economic adaptation of tenants and small owner-farmers, who benefit less from new rice technology than large owner-farmers and owner-farmer landlords. The dis-aggregated effect aggravates socio-economic differentiation among peasant farmers, although it may be mitigated by other sources of income. Thus, as has been shown in the sample villages, the aggregate and dis-aggregated effects of new techno-ecological adaptation may differ, depending on conditions in a particular village.

This analysis raises the question of the implication of socio-economic differentiation in the traditional pattern of organization. The Thai mode of organization has been summarized by the term of figure-focal "entourage system". It seems that this concept is also applicable to Malay peasant communities. The effect of socio-economic change on the traditional mode of organization constitutes an interesting problem in the social aspects of rural development, but this is beyond the limits of this paper.

Comments

by Madya L. J. FREDERICKS*

Prof. Mizuno's short paper on eight rice-growing villages in Thailand and Malaysia as seen from the perspective of comparative rural development processes covers three objectives (see References No. 13, p. 398): (1) to provide comparable data on environment, rice technology and farm economy; (2) to analyze the living standards of peasant farmers who live in different ecological areas and have developed different patterns of rice cultivation; (3) to identify the effects of new rice technology on socio-economic aspects of rural life, which may at the same time be influenced by urbanization or industrialization.

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His basic approach is a cross-cultural, comparative study of rural development with a stated bias toward anthropological insights. Three qualifications limit the writer's ambition in attaining his objectives: that his is a "hasty" review of data collected from the villages in 1976; that his orientation is toward "the changing aspects of peasant communities rather than the component- and consequence-analysis of high yielding varieties *per se*" (see No. 13, p. 398), and, further, that "the paper does not intend to analyze the process of change itself, but instead confines itself to identifying emerging trends" (see No. 13, p. 398).

A careful reading of both the group of objectives and the qualifying constraints on his analysis would generate the feeling that some internal inconsistencies exist. While the author makes a more than commendable effort to deal with disparate and voluminous raw data, I submit that his paper does less than justice to an important topic. Let me try to enumerate my evidence for assuming this position.

While the author himself is an anthropologist and states clearly that his analytical approach is anthropological, few such insights on the processes of or trends in rural development seem to reflect this approach. While I cannot claim to be an anthropologist, even from a layman's viewpoint one would like to obtain analytical insights on the pressures of rural development as seen in the capital-intensive, high technology HYV's on traditional labor exchange mechanisms (which at least in Malaysia is disintegrating rapidly, see Nos. 4, 5, 10, 18); changing sex and role specialization in rice cultivation and rural society; the changing role of formal and informal institutions; patterns of land tenure (see Nos. 8, 9) and so forth.

This becomes a defect of serious proportions especially as related studies are available, even by the author himself (see No. 12). If one accepts that anthropology is the study of peasants and people within their complex societal framework and rural development is, by definition, a change inducing and generating process, then a comparative anthropological study of rural development in eight Malaysian and Thai rice-growing villages cannot afford to neglect the changing situation and world view of the peasant, and also the changing relations of the peasant to his society and environment itself.

It could well be that Prof. Mizuno has chosen to focus his analysis on the economic-anthropological aspects of rice-growing farmers under changing and unstable environments. This, in fact, is the core of his paper which we can now proceed to analyze.

Man and Environment

The thrust of the argument is simple enough: under different ecological environments and with different degrees of control over them, agronomic patterns vary; Traditional Variety (TV), TV/HYV, and HYV/HYV cropping systems for the various ecological groups to which the eight villages are assigned. However, the multiple

strands of man's relationship to and control over his environment are simplistically portrayed as an interaction between geomorphology, soil and water. Not included are biotic factors (competitive and dependent plants, insect predators, microbes, see No. 7), and what Herdt and Wickham (see No. 6) would identify as seasons.

Prof. Mizuno then goes on to state explicitly that "Higher yield and land productivity correspond to ecological adaptation with more advanced technology" (see No. 13, p. 401).

Also on page 401 he uses the term "net paddy yield" which is logically absurd in production economics as input-output relationships produce an absolute, physical quantum for which no net or gross dimensions can be defined. What the writer means is that the net paddy yield is the net revenue from paddy production expressed in physical terms. A comparison of the per hectare yields in the eight villages against the field experimental optima of 8-10 tons/ha. would put the actual individual yields into some relative perspective. Only Padang Lalang in the Muda area of Malaysia appears to be tending toward these absolutes. In addition, one might note that Kubang Luang's per hectare paddy productivity does not put it into the ecological class IV and, in fact, is less than the productivity range of class III. The ecological classes which, to be normally consistent, must directly correspond to productivity attained, appear less than perfect and would call for finer classifications.

An additional point that should be observed is that in Malaysia the HYV's are not actually that but improved TV's (*Bahagia* and *Mat Candu*, mainly). The farmers in Tanjung Karang and in MADA appear resistant to the true IRRI-based HYV's either because of perceived biological weaknesses (lodging, susceptibility to disease, etc.), or cultural preferences (better eating qualities of the traditional varieties).

It is not clear on what basis the author states that "Yet in Padang Lalang, HYV's produce only 1.3 times more than TV's" (see No. 13, p. 403).

It would appear that the linkages between man and environment is viewed in too much of a general perspective. Perhaps I could suggest that the environment and its adaptability to irrigation be separated from the human adaptability to this new situation. This will be elaborated on a little later in these remarks.

Household Economy

After water management (facilitated by the quality and sophistication of irrigation infrastructure), land is the single most important yield and income determinant in rice cultivation (see Nos. 1, 5, 21). This is significantly emphasized by the higher *land* productivity in Padang Lalang but the lower *farm* output because of its smaller acreage as compared to Kubang Luang. An economic point which bears repeating is that high land productivity in small versus larger farms is rationalized by intensive versus extensive cultivation margins.

Prof. Mizuno then introduces some proxy of modernization in terms of “subsistence”, semi-commercialized and commercialized rice cultivation, as indicated by the ecological Groups I, III and IV respectively. The author is on seriously unstable theoretical grounds unless he is more explicit about the terminology he chooses to use. His classification is probably based on Wharton’s (see No. 19) observations, although the latter’s injunction is worth bearing in mind: that subsistence-commercial concept is actually a “continuum or spectrum from pure subsistence at one extreme to pure commercialization on the other” (see No. 19, p. 13). Other classifications have also been attempted, for example, Nakajima’s (see No. 14) definition based on the ratio of hired and family labor utilized in farm operations, the degree of marketable surplus available, and others.

The question that arises is whether there are economic anthropological dimensions to what in one sense or another is the degree of monetization or market involvement. Further, and serious in terms of its implications, is there direct correspondence between the ecological classes and the degrees of subsistence-commercialization? These, if intended, raise serious conceptual and practical weaknesses.

In regard to the nature of rice, non-rice, agricultural activities and off-farm employment, the crucial factor that is gaining vogue in peasant economics is the degree of interdependence of household/consumption and entrepreneurial/management/production decisions in farm-firm households. In this regard, the one economic factor in relatively abundant and freely disposable supply, family labor, should be analyzed carefully in terms of its allocation to paddy, other-agricultural and non-farm activities, from economic and anthropological perspectives. The allocation of family labor and its substitution with hired labor is not a clear equation oriented toward profit maximization (see Nos. 4, 11, 14).

In attempting to detect the significance of non-agricultural income sources, the variable that is important is not so much the environment as such as the availability of cultivable land, tenure patterns, inheritance, agglomerative tendencies, land alienation policies, etc.

Since labor employment in non-agricultural pursuits contributes differently to total household income in the eight villages, Prof. Mizuno postulates that the reasons for this variation “lie in the degree of mechanization, modes of labor demand, and patterns of mutual help in agriculture” (see No. 13, p. 406). Perhaps some elaboration is required here: is there clear and inverse relationships between the degree of mechanization and labor utilization (see Nos. 16 and 17 which contain Malaysian and Thai cases of relevance; see Nos. 3, 4, 5)?; the significance of off-farm labor employment is not related primarily to demand but supply, itself affected by complex interrelations in family labor allocations and hired labor use (see No. 4); the links between patterns of mutual help and off-farm opportunities are not clear either. In Tanjung Karang and MADA, cultural

labor mechanisms are slowly disintegrating because of the monetization of inter-personal and cultural relationships. This is surely an anthropological phenomenon which merits analytical effort.

Socio-Economic Differentiation

Prof. Mizuno states that "socio-economic differentiation cannot be properly understood without an investigation of the patterns of economic adaptation of village households by type of land tenure and size of holding" (see No. 13, p. 407).

In order to examine socio-economic differentiation, farmers are classified into landlords, farmers and laborers. Two questions arise here: are there possibilities of overlap in these three classes and is it the status of the household head which determines the classification? Particularly in the latter, certain complexities can arise. A third question is on exactly what bases are farmers further differentiated into A, B and C categories. We are further informed that these sub-classes are not comparable across all the villages investigated thus weakening their cross-cultural analysis. Another question that arises is what happens with farming landlords and how are they categorized.

Since land tenure is one of the determinants of socio-economic differentiation, is it the tenure of rice farms alone that account for this? If so, this projects only part of the picture as non-rice land plays an important economic function for small farmers. Disaggregating socio-economic status on the basis of paddy land tenure alone is misleading in areas where mixed cropping is prevalent; only where specialization in paddy production occurs or where paddy lots constitute 90% or more of the total farm is the analysis valid.

Prof. Mizuno also states that "... , higher techno-ecological adaptation creates new economic conditions for peasant farmers, and the trends are irreversible. However, these conditions impose a strain on the economic life of small owner-farmers and tenants" (see No. 13, p. 407). Once again, one is intrigued by what is stated but, like the proverbial seventh veil, the best things are yet to come! If I could suggest the following as an analytical framework for ecological adaptation of farmers to facilitate analysis: (a) techno-ecological adaptations are first undertaken by exogeneous agencies (usually the government), and reflected in the creation of irrigation and drainage infrastructure; and (b) farmers themselves in varying degrees adjust to the adapted environment. That is, double-cropping requires (a) as a necessary condition; the sufficient condition to the farmers' adaptation to modern rice technology is (b) in their adjustment to (a) and its complementary technologies and inputs.

The "strain" that Prof. Mizuno discusses is focussed on the higher cash expenditures involved in rice double-cropping especially for chemical inputs, hired labor and mechanical services. However, an important point seems to have been overlooked: imputed labor and other home-supplied inputs (seeds) make expenditures higher

than they actually are (assuming positive opportunity costs for them) and net paddy revenues lower than they should be. No mention is made, moreover, of depreciation on land and capital resources.

A further important observation made by Prof. Mizuno is that “the distribution of income from paddy is not simply the result of land ownership, but includes the dis-aggregate (*sic*) effect of new technology on the economic standing of different types of farm households” (see 13, p. 407). Once again more is hidden in what is said than what is explicitly stated, thus leading to the possibility of miscomprehension. The dis-aggregated economic impact of the new rice technologies should be seen in its differential use and is manifested in varying physical productivities. While this is the impact, the economic and anthropological causes need investigation. Various factors like access to inputs, credit, extension services, efficiency of farmers’ institutions, farmers’ attitudes to change and personal equations of cost/benefits, etc., all come to mind as testable hypotheses (see Nos. 6, 9, 11, 15, 20).

Other important consequences have not been touched upon by Prof. Mizuno, like for instance, the real possibility of the creation of a class of landless laborers in the rice sector, the labor-displacing and agglomerative tendencies of mechanization, the pressures placed on small farmers and renters, etc.

Prof. Mizuno raises the interesting hypothesis that urbanization/industrialization expands the livelihood opportunities available to farmers seeking such employment. Its causal relationship appears over-estimated, in my opinion, as in Tanjung Karang, for instance, non-agricultural jobs are available on estates. The crucial factor could possibly be the extension of the radius of exploiting employment opportunities (see No. 4).

One other phenomenon studied is the incidence and prevalence of indebtedness. One must distinguish between the indebtedness-increasing effects of HYV’s and the traditional indebtedness of farmers, as, for example, in Thailand (see No. 2).

The study by Prof. Mizuno would benefit in no small measure by the wealth of existing research material not only on Thailand and Malaysia generally, but on even the specific locations studied. Furthermore, research is available on economics, anthropology, ecology and other disciplines. One could also suggest that the author relate his analysis to overall rural development policy in the two countries. For example, the rice price premium policy in Thailand and the incentive for increasing production, the Government stockpile and Guaranteed Minimum Price for rice in Malaysia, input subsidy policies and so forth.

As a conclusion, I would stress that micro-level village studies are of supreme importance but they have to be related to and balanced by regional and national considerations. Otherwise, like the studies of peasants and their economy using a purely economic calculus, peasants are perceived of in a vacuum. Interdisciplinary research has as its highest function the elimination of that vacuum.

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